



Space News Roundup

Vol. 29

October 26, 1990

No. 43

Excellence award

Rockwell wins Low Trophy

For the second year running, a JSC contractor has won NASA's top excellence award for quality and productivity improvement.

Rockwell International Space Systems Division of Downey, Calif., which provides a diverse base of products and services ranging from production of the new space shuttle orbiter to shuttle mission support, received the first George M. Low Trophy on Wednesday at the Seventh Annual NASA/Contractors Conference in Grenelle, Fla.

Marotta Scientific Controls Inc. of Montville, N.J., won the award in the newly established small business category. Marotta provides critical valves and systems for launch vehicles, pads and engine test facilities.

"These two firms have demonstrated exceptional performance in attaining a level of quality and productivity that commands our respect and deep appreciation," said NASA Deputy Administrator J.R. Thompson in announcing the award winners.

Rockwell was one of four JSC contractors nominated for the award. The company has been nominated every year since the award was created four years ago. Other JSC nominees were Barrios Technology Inc., Houston; Honeywell Inc. Space and Strategic Systems Operation, Clearwater, Fla; and UNISYS Houston Operations. Last year's winner, Lockheed Engineering and Sciences Co., also was a JSC contractor.

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JSC Photo

STICK 'EM UP—STS-38 Mission Specialist Bob Springer suits up for routine contingency extravehicular activity training in the Weightless Environment Training Facility. Robert Knight, left, and Don Smith, suit technicians for Boeing Aerospace Operations Inc., help Springer into the space suit before he enters the WETF pool. The five-man crew is continuing to train at JSC for its Department of Defense mission. Launch may be as early as Nov. 9.

Tanking test shows Atlantis free of leaks

By James Hartsfield

Following a leak-free tanking test Wednesday, preparations are in high gear to launch *Atlantis* perhaps as early as Nov. 9 on STS-38, a Department of Defense-dedicated mission.

An official date for the launch will be set following the STS-38 flight readiness review scheduled for Monday and Tuesday.

Wednesday's tanking test used both liquid hydrogen and liquid oxygen to partially fill the external tank and complete a thorough leak check of *Atlantis*' main propulsion system plumbing. All indications from sensors on *Atlantis* were that only minimal leakage was present, leakage that was well within the acceptable limits.

External sensors near the 17-inch disconnect showed 500 to 600 parts per million of hydrogen in the area during the most crucial part of the test, far less than the launch limit of 40,000 parts per million. Sensors in the aft fuselage of *Atlantis* showed a maximum of 175 parts per million of hydrogen present in the area, well below the 500 parts per million allowed for launch.

The crew for the STS-38 mission is Commander Dick Covey, Pilot Frank Culbertson and Mission Specialist Bob Springer, Carl Meade and Sam Gemar.

Meanwhile, on Launch Pad 39B, a

similar tanking test is planned for *Columbia* on Monday. The special investigation team charged with fixing *Columbia*'s leaks has identified and corrected several possible sources in the vehicle's aft fuselage, including tightening several plumbing connections and replacing a damaged seal. *Columbia*'s test is scheduled to begin at 6 a.m. CDT.

The spacecraft has been fitted with an array of special instrumentation, baggies and cameras in suspect areas for the test. Also, plexiglass doors have been installed in place of the normal aft fuselage access panels to allow visibility in the area.

A health maintenance test of the Astro payload was completed Tuesday, showing the equipment in good shape.

In Bay 1 of the Orbiter Processing Facility, *Discovery* is being processed following its flight on STS-41. Work this week included deservicing the auxiliary power units, removal of the forward reaction control systems, and preparations for draining residual hypergolic propellants. The propellants are scheduled to be drained this weekend.

Discovery's next flight will be STS-39, a Department of Defense flight carrying the Infrared Background Signature Survey and Air Force Payload-675.



STS-38

Expo will showcase JSC projects

Exhibits, demonstrations and mock-ups highlight event

By Pam Alloway

In the seven years since the first Engineering Exposition, the event has grown from a three-and-a-half-hour affair held in conjunction with the June 1983 Space Shuttle Program conference to a three-day, 22-hour extravaganza.

This year's expo will be from 10 a.m. to 4 p.m. and 4:30 to 7:30 p.m. Tuesday; 10 a.m. to 5 p.m. Wednesday; and 10 a.m. to 4 p.m. Thursday at the Gilruth Center.

Exhibits, demonstrations, mockups and models will fill the Gilruth's ballroom and gymnasium resulting in a culmination of five months of planning and numerous hours of work from a variety of sources. Following

its 1983 debut, the expo was held annually until 1986 when organizers decided to hold the event biennially, said Paula Beckstrom, a chemical engineer and this year's expo coordinator.

Expo organizers are quick to point out the event would not be possible without assistance from numerous organizations including transportation, whose employees today will load five trucks with many of the exhibits and mock-ups, and unload them at the Gilruth by noon Monday; Technical Services, whose employees built many of the mockups and exhibits; and the JSC Television Office, whose employees will loan and set up television sets and video

cassette recorders for the exhibits.

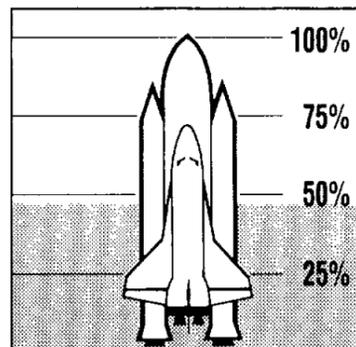
Additionally, employees in other areas have done extensive graphic work for the event, and still others will install extra phone lines and electrical power capabilities to the Gilruth's existing resources.

All this is under way to support next week's expo that will feature numerous projects including a mock-up of the Human Spacecraft Design Lunar Transfer Vehicle's crew compartment. The project is the creation of JSC's Human Spacecraft Design team whose members design options for space transfer and excursion vehicles with special emphasis placed on the human element of space travel.

The HSD team uses its collective engineering and scientific expertise to design spacecraft crew compartments and associated systems that would protect crew members from the harsh environment of interplanetary space. The team uses high and low fidelity crew compartment mock-ups to test and demonstrate the viability of interior arrangements.

A full scale mock-up of the Aero-assist Flight Experiment will be parked in the Gilruth parking lot. Scientists and engineers are working on the experimental spacecraft that would plunge into the upper reaches of the Earth's atmosphere, ricochet back toward space after decelerating

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1990 GOAL: \$350,000



Class giving quitters an edge in non-smoking battle

By Brian Welch

We did it!
At least for a day, perhaps for a lifetime, 46 of the 58 of us enrolled in JSC's smoking cessation class have put the cigarettes aside.

It's 3:18 p.m. Wednesday and I haven't had a cigarette for 39 hours, 18 minutes and 42 seconds.

43 seconds, 44 seconds, 45 seconds...

What I have had in this smoke-free period, however, is about a gazillion pieces of Big Red chewing gum, one chocolate Tootsie Roll Pop (the 155mm, self-propelled howitzer of abstinence artillery because it lasts a good, long time), three yeast rolls from the Black-Eyed Pea, (in a moment I shall eat the tin foil they came in) and about a hundred cups of apple juice. No coffee. No cream. No sugar.

I want my mommy.

But overall, I have to say this hasn't been as bad as I experienced in July, when I went a little more than five days without smoking. Back then, it was one long agonizing withdrawal

pang, like living life as a raw nerve, from Monday morning to Saturday afternoon before I finally said to Hell with it. But this time it's different because: a) I'm not mad about having quit smoking, and b) I have somehow managed to get a leg up on the mental warfare associated with quitting.

A good friend of mine gave me something important to think about a few weeks ago. He told me that if I'm resentful of having to quit,

if I am starting this process feeling that I have to give up something that I would rather not give up, then I am going to be at war with myself, so why bother? If, on the other hand, I can achieve a sense of freedom in quitting, if I can find within this agony any sort of release from all the crapola I dread when it's time to turn JSC into a smoke-free workplace, then maybe I can make it this time.

And so far, for the last 39 hours anyway, that philosophy has worked. I feel fine, I'm experiencing a lot fewer withdrawal symptoms than I remember from past attempts, and generally I feel so good that I would want to kill me if I were anybody else

in my smoking cessation class. Of course, I'm doing this in front of the Roundup's 16,000 readers. That has to make some sort of difference in my determination.

Anyway, about midway through Tuesday afternoon's class, some of us wondered if a little butt kicking (no pun intended) was in the offing. I noticed that I was starting to perspire heavily, that my head was swimming, and that the siren's song of the cigarette was beginning to waft down the halls of Bldg. 45. Up until that point, it had been a pretty easy day. What was going on?

It took a flight dynamics officer to figure it out, of course. "Listen, I've pretty much had it with you people and with this class," he snapped. "I've been doing really well all day,

Please see **SMOKERS**, Page 4



Smoker's Diary 5 Week 5

JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m. to 2 p.m. weekdays.

- General Cinema (valid for one year): \$3.75 each.
- AMC Theater (valid until May 1991): \$3.50 each.
- Sea World (San Antonio, year long): adults, \$17.25, (2-day \$21.95); children (age 3-11) \$14.75, (2-day \$18.95).
- Texas Renaissance Festival (Saturdays and Sundays, Oct. 6-Nov. 18): child, \$4.95; adult, \$8.95.
- Dickens on the Strand (Dec. 1-2, Galveston): child (6-12), \$2, adult, \$4, seniors, \$2. Tickets go on sale Nov. 1.

JSC

Gilruth Center News

Sign up policy—All classes and athletic activities are first come, first served. To enroll, you must sign up in person at the Gilruth Recreation Center. Everyone will be required to show a badge or EAA membership card. Payment must be made in full at the time of registration. Classes tend to fill up four weeks in advance.

EAA badges—Dependents and spouses may apply for a photo I.D. 6:30-9:00 p.m. Monday-Friday.

Defensive driving—Course is offered from 8 a.m.-5 p.m., Nov. 17 and Dec 15. Cost is \$15.

Aerobics and exercise—Both classes are ongoing.

Full run—The 10km and/or 2 mile races for the annual Intercenter Run will be held throughout October. Runners may submit their times at the Gilruth Center.

Country and western—Dance lessons begin Oct. 29. The six-week class meets Mondays. Cost is \$20 per couple.



New way to start your day!

The JSC Employee Information Service now is updating its reports at 8:30 every morning.

For the latest information on what's happening at JSC, from seminars to crew return ceremonies, the JSC Employee Information Service has what you're looking for.

The recorded announcement can be reached by calling:

483-6765

JSC

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2. No phone or fax ads accepted.

Property

Rent: 3-2-2, La Porte, Fairmont Pkwy., FPL, 15 min. to JSC, \$650/mo. plus dep. x36665 or 333-9733.
 Sale/Lease: Green Acres townhome, 2-2.5/1 plus 1, \$4,500 assumes FHA fixed rate, no app. loan, \$57K balance, \$683/mo. plus \$50/mo. maint. fee, lease \$750/mo., no pets, 2 mi. from JSC, x35250 or 333-2636.
 Sale: Fairmont Pk. West, La Porte, 4-2-2, new carpet/paint, inground pool, non-qual., assumable loan, \$75K, x39441 or 470-9738.
 Lease: CLC condo, 2-1, FPL, re-carpeted/tiled, all appl., miniblinds, W/D conn., stor., \$450/mo. 486-0315.
 Sale: Friendswood, Mustang Meadows, 2.03 acres, util. avail. 481-4187.
 Sale: Dickinson, 2 acres, Humble Camp Rd., improved property, all util. avail., \$12,500/acre. Shelly, 333-7153.
 Sale: Texas City, 2-1-1, den, DR, encl. back porch, curbs, \$32,500, OBO. Shelly, 333-7153.
 Rent: Lake Livingston w/frnt. house, 3-2, CA&H, furn., cov. decks, pier, new cond., wk/wknd rates. 482-1582.
 Rent: CL, Oakbrook West, 4-2-2, lg. paneled LR, fans, FPL, DR, refrig., W/D, det. gar., no pets, \$1K/mo. plus dep. 486-8835 or 486-8605.
 Rent: Lake Travis cabin, priv. dock, CA&H, equipped, accomm. 8, dly/wkly rates. \$80/\$325, 326-5652.
 Sale: Bay Glen, 2-story, 3-2.5-2C, alarm sys., FPL, leaded glass door, wndw. cov., gutted, workbench in gar., \$122,900 assumable. x39230 or 486-7106.
 Rent: LC, Oak Manor, 3-2-2, FPL, new paint/gray carpet, cov. patio, fen. yd., 20x20 garden, alarm, fans, frig., W/D, \$750/mo. plus dep., no pets. x39230 or 332-3278.
 Sale: .86 acre res. restricted, all util. avail., Magnolia/Woodlands area, \$10K, OBO. Rob, x33484 or 481-1813.
 Sale: Orlando, FLA retirement home, golfers dream, 2-2, den, Florida rm., furn. w/Ethan Allen furn., incl. golf cart, on 18 hole course, \$49,900. 280-2523 or 333-1762.
 Sale: Limestone County, 40 acre pastureland on paved road, fen., ponds, barn, corral, catch pen, 2-2 mobile home, sell by owner, \$68K, 479-3965.
 Lease: CLC, Bay Forest II, 4-2.5-2, 2,600 sq. ft., long term desired, \$1,500/mo. principals, 488-4398.
 Rent: Galv. condo, furn., sleeps 6, Seawall & 61st St., dly/wkly/wknd rates. x33479 or 486-0788.
 Sale: Hitchcock, 2-1-1, CH, cedar fen., W/W carpet, VA assum., 9 1/2% interest, pmts. \$306/mo. plus equity, x32279 or (409) 925-4882.

Cars & Trucks

'85 Subaru hatchback, std., 39K mi., \$1,200. Mark, x37730 or 486-4806.
 '80 Mazda 626 Club Coupe, 4 cyl., 25mpg, ex. cond., \$1,700, OBO. x30428.
 '66 Mustang, 3-2 V8, auto., alarm w/rem., mag wheels, AC, \$4K, OBO. Bob, 471-6189.
 '77 Gran Prix, new trans./radiator, 4 new tires, good cond., \$1,500. David, 282-3827 or 554-5514.
 '80 Cadillac Seville, ex. cond., loaded, \$2,500. 337-4880.
 '89 Acura Legend "L", ext. warr., loaded, 485-6251.
 '82 Merc Capri, needs body work, \$1,100, OBO. x38502 or 486-9191.
 '71 Dodge Charger 383 CI, needs int. work and new vinyl top, lic. expired, \$1K, 339-1957.
 '73 Pontiac Catalina 400 CI, 2bbl, 80K mi., V8, AC, auto., runs good, \$1,200; '83 Ford F150, auto., '8' bed, 70K mi., \$3,500, OBO. Howard, x34765 or 474-3911.
 '69 TR6 OD, AC, reb. eng., low mi., ex. cond., \$4,500. x34818 or 480-8335.

'89 Olds Calais S, 2-dr., 5-spd., Quad 4 eng., FE3 suspension pkg., warr., loaded, \$9K, 470-8759.
 '87 Pontiac Gran Am, air, auto., 4-dr., low mi., \$6,150. x36588 or 358-9598.
 Chevy truck, 1 ton, 4x4, new tires/shocks, 4-spd., \$3,200, OBO. Kelly, x36169 or (409) 925-1819.
 '89 Nissan Sentra, 2-dr., new tires, low mi., ex. cond., \$5,800, OBO. 929-7334 or 578-7118.
 '79 Chev. van, good cond., \$1,495. 532-2082.
 '85 Buick Electra Park Ave., 4-dr. sedan, 70K mi., auto., auto. headlights, ex. cond., \$6,800. David, 334-2766.
 '87 Jaguar XJ6, 46K mi., maint. rec., ext. warr., radar detector, ex. cond., loaded, \$22K. Dean, 280-2776.
 '89 Ford Escort GT, 12K mi., ext. warr., ex. cond., refin. loan at \$258/mo. plus TT&L. 283-4690 or 554-7471.
 '79 Ford Fairmont, 4-dr., 6 cyl., auto., approx. 96K mi., AC, \$700, OBO. x39579 or 482-6187; '87 Chev. Cavalier, 4-dr., auto., 37K mi., ex. cond., pwr. train warr., \$4,600. x39579 or 482-6187.
 '68 Plymouth Fury II, 318 eng., new oil pump/distrib./starter/coil/batt., reb. carb., good cond. 946-4867.
 '84 Ford Tempo, 2-dr., std., good tires, good mi., \$2K. 332-4732.
 '83 Chevy Malibu Classic, V6, new batt., 5 new tires, 101K mi., BO. Bruce, 333-6647 or 286-1032.
 '79 IHC Scout, 4 WD, hard top, soft top, roll bar, \$3,250, OBO. Wayne, 283-6514.
 '88 Ford T-Bird TC, 26K mi., std., ex. cond., \$10,800 nego. Rich, 480-2570.
 '83 Plymouth Turismo, 2-dr. hatchback, ex. cond., 61K mi., 5-spd., \$2,900, OBO. Dennis, x34405 or 480-5076.
 '86 1/2 Nissan short bed PU, 4 cyl. 224 eng., 5-spd., sliding cab wndw., rubber bed mat. 532-1994.

Cycles

'85 Honda Nighthawk 650cc, ex. cond., \$1,500, OBO. x30428.
 2 bikes, girls 24" (\$35) and Unisex 18" sport-type (\$25); 30 yr. old antique Polaroid cam., good cond., \$32; packing boxes, sell for 1/2 orig. cost. x33182 or 486-2622.
 Raleigh 10 spd., sm. womens bike, 27" tires, \$75, OBO. 554-4365.
 '88 Bianchi Strada LX w/sun-tour components cat-eye microcomputer, gel seat cov., LT 700 helmet, repair kit, mounted bottle cages (2), ex. cond., \$500. 488-0003.
 '82 Honda Moped, ex. cond., \$125; pr. spkr. boxes w/3-way, 150W 6x9 Kenwood spkrs., \$45; 7x7 tent, \$20; Royce 40 chan. CB, antenna, \$20. Keith, x35191 or 480-8449.
 '82 Honda Moped, ex. cond., \$125. 480-8449.
 Trek 560 racing bike, 25" Reynolds 501 frame w/ bik. Imron paint, sun tour components, Dia-Comp brakes, Sakae crank, Avocet seat, ex. cond., \$300. Joe, x34538 or 481-1317.
 '81 Honda CB 900 motorcycle, sport model, fresh Avon tires, helmet, 13K mi., \$1K, OBO. Wayne, 283-6514 or 337-5990.
 Schwinn Le Tour 10-spd., Shimano derailleurs, Zefal pump, good cond., \$95. Ruben, x33829 or 486-0817.
 '88 Honda Interceptor, low mi., ex. cond., \$2K. Bruce, x35571 or 485-0396.

Boats & Planes

'18' Champion bass boat w/175 XP Evin. OB, \$1K equity, refin. balance. Date, x39441.
 Fiberglass fishing boat, 15hp Evin. OB, trlr., \$500. Bob, 482-9576.
 '87 18' Celebrity Bowrider, 165hp IO, galv. trlr., new spare, stainless prop, cover, top, ex. cond., \$9K, OBO. 286-3626.
 Challenger raft, oars, pump, 2 life jackets, ex. cond., \$90. Liz, 282-2511 or 486-3991.
 '83 27' Chaparral cabin cruiser, new electronics, swim platform, full galley/head, AC, sleeps 6. x31833 or 534-6073.
 '16' Hobbie Catamaran, dilly trlr., dbl. trap, \$750. x37070 or 280-8500.
 Lido-14 sailboat, sails, trlr., cntrbd., sloop, loaded, ex.

JSC

Dates & Data

Today

Chili cookoff—The Center Operations Directorate will hold its chili cookoff at 4 p.m. Oct. 26 at the Gilruth Center. Public tasting begins at 7 p.m.

Cafeteria menu—Special: fried chicken. Entrees: fried shrimp, baked fish, beef stroganoff. Soup: seafood gumbo. Vegetables: okra and tomatoes, buttered broccoli, carrots in cream sauce.

Sunday

Bicycle ride—The Texas Coastal Century bicycle ride, a comprehensive tour of the greater Bay Area, will be from 8 a.m.-5 p.m. Oct. 28, starting at the University of Houston-Clear Lake. Registration is \$15. Call Mike Prendergast at 335-2505 for details.

Monday

Cafeteria menu—Special: meat sauce and spaghetti. Entrees: franks and sauerkraut, sweet and sour pork chop with fried rice, potato baked chicken. Soup: cream of potato. Vegetables: French beans, buttered squash, lime beans.

Tuesday

National Interactive Teleconference—The National Interactive Teleconference for undergraduate students in science and engineering begins at noon Oct. 30 at the University of Houston Hilton Hotel and Conference Center. For more information, contact Lupita Armendariz at x30604.

Space conference—Space Exploration '90, a conference and aerospace industry exposition sponsored by the NASA Alumni League, will be held Oct. 30-Nov. 1 at the South Shore Harbour Resort and

Conference Center. Contact Carol Ramey, exposition manager, 800-765-7615, for more information.

Cafeteria menu—Special: smothered steak with dressing. Entrees: beef stew, liver and onions, shrimp Creole. Soup: navy bean. Vegetables: buttered corn, rice, cabbage, peas.

Wednesday

NCMA meets—The Houston chapter of the National Contract Management Association will have its first non-credited, two-day class from 8 a.m.-4 p.m. Oct. 31-Nov. 1 on the University of Houston-Clear Lake campus. The instructor will be Mike Slocum. Deadline for registration is Oct. 26. Additional information is available from Dr. Sam Bruno, 283-3122.

Astronomy seminar—The JSC Astronomy Seminar will be at noon Oct. 31 in Bldg. 31, the Conference Rm. 129. Steve Williams of the Lunar and Planetary Institute will speak on science vs. pseudoscience. For more information contact Al Jackson at 333-7679.

SEPEC series—The Software Engineering Professional Education Center will hold a seminar at 8:30 a.m. Oct. 31 at the University of Houston-Clear Lake, Bayou Bldg., Rm. 2-504. The topic will be "Federal Security Needs and Direction for Aerospace Applications." Registration is \$95 per person per session (group discounts and special rates are available). For more information contact SEPEC at 282-2223.

Cafeteria menu—Special: salmon croquette. Entrees: roast beef, baked perch, chicken pan pie. Soup: seafood gumbo. Vegetables: mustard greens, Italian green beans,

sliced beets.

Thursday

Cafeteria menu—Special: stuffed cabbage. Entrees: beef tacos, ham and lima beans. Soup: beef and barley. Vegetables: ranch beans, Brussels sprouts, cream style corn.

Nov. 2

Cafeteria menu—Special: Salisbury steak. Entrees: fried shrimp, deviled crabs, ham steak. Soup: seafood gumbo. Vegetables: buttered carrots, green beans, June peas.

Nov. 6

Ada users' symposium—The third annual NASA Ada Users' Symposium will be Nov. 6 and is hosted by JSC and the MITRE Corp. For more information contact John Cobarruvias, x39357, or Sheila, 333-0910.

ASQC meets—The American Society for Quality Control will meet at 5 p.m. Nov. 6 at the American Host Inn. Steven Davis will speak on "Quality Management in the World of High Tech Medical Manufacturing." For more information contact Ray Swindle at 280-2797.

Nov. 7

IEEE video conference—An IEEE Galveston Bay Section Video Conference will be at 10:30 a.m. Nov. 7 in the Gilruth Center. Registration deadline is Nov. 2. For more information, call Andy Lindberg, x31474.

Astronomy seminar—The JSC Astronomy Seminar will be at noon Nov. 7 in Bldg. 31, Rm. 129. Dr. Al Jackson will report on the Division of Planetary Science Meeting. For more information contact Jackson at 333-7679.

cond., sailing lessons incl. if needed, \$2,100. R. Hoover, x31360 or 996-7716.

'18' Sea Ray OB, 135hp w/custom trlr., ski equip., good cond., \$6,500, OBO. parasail, \$300. Steve, x2530.

Audiovisuals & Computers

Pioneer CD-750 cass. tape deck, acoustic research XB-9 turntable, Kenwood KR-4400 AM/FM rec., \$75/ea. x39588 or 487-1883.
 Apple 2C computer w/ext. disc drive, printer, misc. SW, \$540. 482-0447.
 IBM PC/AT SW, Microsoft Excel V2.1, Borland Sprint, Copy II PC, VP Expert, Planner, Graph, etc. 282-2802.
 IBM compat. Laptop, backlit screen, 2 3.5" floppy drives, 1200 baud modem, mouse, SW, \$800. Mary Lou, x34306 or 480-2206.
 Epson Laptop computer, 20MB HD, 3 1/2 floppy, backlit screen, case, SW, \$950. Carol, 233-4614.
 TI-994A computer w/assorted SW cart. and access., \$150. Ed, x38969 or 332-0442.
 AT&T 6300 personal computer, 640K 20 Meg HD, high resolution monochrome monitor, optical mouse, SW, \$895. Jon, 796-8225.
 Bondwell Pro-8T Laptop computer, 2-720K floppy drives, int. 1200 baud modem, turbo, batt. or plug in, all ports, 3 mos. old, \$895. Jon, 796-8225.
 Mac Plus, kybd., floppy disk, display, sys. SW, manuals, 1 MB mem., \$750, OBO. 283-5632 or 326-2010.
 Toshiba T1000 w/1.3 meg mem., modem, \$700; Diconix 150P port. printer, \$200. Larry, x32656.
 IBM-XT286 (AT motherboard) w/IBM printer, 20 Meg HD, 80287 coprocessor, 5 1/4 and 4 1/2 disk drives, Hercules Plus card, IBM monitor, SW, full documentation, \$1,695. 283-5534 or 532-2163.
 Scuba dive computer, U.S. Divers Data Scan III, 1 mo. old, 1 yr. warr., replaces depth gauge, press. gauge, timer, \$550. Patrick, x32635 or 488-1079.
 Video camcorder batt. for Canon 8mm (4) CM 1060 Nickel-Cadmium batt., 6V 1000 mAh, \$50/ea.; stereo cass. rec. player/AM/FM radio, \$50. Patrick, x32635 or 488-1079.

Musical Instruments

Violin 1/2 sz. Suzuki Nayoya for beginner, case, bow, ex. cond., \$295. 333-6963.
 Yamaha PF-15 elec. piano w/MIDI, 88 key w/gled. action, spkrs, line in, incl. Anvel ATA case, \$895. 283-5534 or 532-2163.
 Yamaha 4-valve Euphonium w/comp trigger, \$650. Carl, x49806 or 488-5721.

Lost & Found

Lost: Stainless steel pocket knife w/initials DMW. Dave, x32913.
 Lost: Lace/linen handkerchief on Fri., Oct. 5. Return to Lydia, B-30, Rm. 2011C or call x37031 for pickup.

Pets & Livestock

AKC Rottweilers, \$100/ea. 996-0683.
 Reg. quarterhorse mare, 5 yrs., App mare, 12 yrs., \$625/both. Kelly, x36169 or (409) 925-1819.
 Beagle, tri-colored fem., 6 mos., AKC reg./papers, \$150. Leonard, x37587 or 481-8852.
 Dachshund pups, AKC, std., smooth, blk./tan, shots & wormed, Ch. bloodlines, born 7-6-90, \$200. Emelie, x37234 or 489-1390.
 Pekinese puppies, born 9-10-90, AKC, vet checked, good with kids, \$275. Mark, x38818 or 436-9317.

Photographic

Canon 430 EZ flash w/digital data back, ex. cond., w/case, \$150. Mike, x38169 or 482-8496.
 Nikon EM - 35mm camera, F1.8, 50mm, case, manuals, ex. cond., \$100. Tony, x34415 or 480-2206.
 Nikon FE 35mm w/50mm lens & strap, \$75; Canon AE-1 prog. 35mm w/50mm lens, teleconverter lens, bag, strap, \$175; Sunpak auto 133 flash, \$25. Kent, 333-6570.
 Mamiya RZ 6x7 Polaroid back, \$250; motor winder II, \$250 both new w/LC; Sigma 35-135mm F/3.5

for Minolta Maxxum, \$100. Joel, 282-3517 or 482-4247.

Polaroid Mini Portrait cam., Model 251, uses Polaroid 545 film, takes 1 or 2 pictures simultaneously, \$150, OBO. Michael, x38169.

Household

Wards Signature chest type freezer, \$180; home entertainment center cab., \$80. Samouce, x35053 or 482-0702.
 Platform bed w/shelves, foam matt., king, \$100; child's solid wood BR set, 6 pcs., \$185; sofa & ottoman, \$50. Mark, x37730 or 486-4806.
 DR set, rattan, solid-top table, cushioned swivel chairs, \$350; DR table/buffet unit, ext. to 84", \$175. x36665 or 333-9733.
 DR table, 4 chairs, \$35; miniblind, navy, 35x35, \$10. x39588 or 487-1883.
 Microwave, full sz. Panasonic, 500W w/turntable, ex. cond., \$125. 286-5431.
 Sectional sofa, contemp., \$300; glass top DR table w/6 leather chairs, good cond., \$250, x37788.
 Queen sz. wrdb. w/htr., new bladder, ex. cond., \$85; lg. Early Amer. oval yellow/brn. rug, \$20. Terry, x35026 or Nancy, 326-1181.
 Desk, 48x28, all wood, good cond., 7 drwrs., \$95; full sz. matt., box spring, Sealy, good cond., \$85. Ted, x38894 or 280-9595.
 Sofa, loveseat, coffee table, 2 end tables, 2 lamps, all good cond., \$230, OBO. 282-3732.
 Antique maple dresser w/bev. mirror, \$400, OBO. 283-5496 or 332-1614.
 Traditional sofa w/cushions, velour tapestry design, \$90; French traditional chair, \$20; upholstered swivel rocker, \$30. 488-8866.
 Glass/bamboo coffee table, \$50; 2 solid oak end tables, \$50. Kim, 283-5703 or 559-2764.
 Rattan/wood rocking chair, good cond., \$30; antique dresser, 4 drwr., key lock, BO. Michelle, x31165.
 Norelco microwave, 8 yrs. old, good cond., \$50. 481-4372.
 3 shelf bookcase, ladies 3-pc. Samsonite luggage set, 1 ea. mens Hartman & Amer. Tourister 2 suiter luggage, 30" bar stool, 2 drwr. end table w/glass top, hexagonal end table w/2 door access. int., coffee table w/drwr., 2 table lamps w/shades. 532-1993.
 Carpet pad, 5-lb. 5/8", 40 sq. yds., ex. cond., \$1/ per yd. 486-8266.
 Comfy sofa, off-white upholstery, zips/snaps off for washing, ex. cond.; lg. oriental rug, Chinese design, cream-gray-dk. navy-rustral, nego. Anne, x34493 or 286-2932.
 2 rattan chairs, high backs, \$40/set. x38889 or 480-1340.
 King sz. wrdb. w/htr., \$75; 9 drwr. dresser w/mirr., \$35 or \$100/both; lg. side-by-side ref., wtr./ice in door, almond, ex. cond., \$500, OBO; lg. cap. W/gas dryer, \$200. Steve, 333-7496 or 332-2977.
 Sony rem. color TV, \$150; Sears self prop. lawnmower, \$65; twin matt., box spring w/frame, \$65. 335-4204 or 286-1212.
 Round table, \$75; coffee tables, lamps, etc. 283-5310 or 992-3014.
 Tapan dishwasher, \$125; gas range, \$150, both 5 yrs. old. 283-5310 or 992-3014.

Wanted

Responsible 25 yr. old divorced male would like to rent sm. 1 or 2 BR house/duplex/gar. apt. in LC, Pearland, or somewhere near JSC w/low rent beginning in Dec. 470-8759.
 Want occasional responsible teenage or older babysitter for 4 1/2 yr. old girl in our Webs. home, ref., will pay competitive rates. 332-0442.
 Want carpools from Allie/Memorial area. Barry Halpern, 333-9502.
 Want full sz. 6 cyl. used PU, auto., AC, good cond., less than 100K mi. x38520 or 332-1614.
 Want riders for vanpool starting from SW side and Braeswood-610 locations to JSC. Chau, 933-2395.
 Want fem. roommate, house located in LC, \$275/

mo. incl. util. 332-0613.

Want MerCruiser 260hp eng., dead or alive. x38039. Want to borrow a Winnebago or sm. motor home for 3 wks., Dec. 15-Jan. 5, 1991. x30915.

Want fem., non-smoking roommate to share 3-2-5-2 home in CLC, \$330/mo. plus 1/2 util. Linda, x36881 or 486-5246.

Want unwanted gar. items, knick knacks, furn., vehicles. 339-1337.
 Want MIDI compat. touch sensitive kybd. John, 334-3422 or x31929.

Miscellaneous

55 gal. fish tank w/wooden stand w/bookshelf, access., \$200. Bob, 471-6189.
 Mens 14K gold nugget bracelet, \$200. Mike, x38169 or 482-8496.
 Lg. womans natural mink coat, full length, full cut, exquisite design, long guard hairs, \$800; 2 wool w/ fur collars, \$80; rabbit jacket, \$30; synthetic long coat, \$30; dbl. fox wrap, \$30; dresses, blk. sequened cocktail, \$50; decor. oriental silk cocktail, \$50. Samouce, x35053 or 482-0702.
 Executive desk, credenza, walnut, sec. desk, 3 2-drw. desks, \$750, OBO. 333-2636.
 Golf clubs, Tour Model III, 1-SW, \$16.95/club and metal woods, 1,3, or 5, wood, \$25/club. David, 554-5514.
 Rowing and stairstepper exer. mach., both ex. cond., \$70/ea. or \$125/both. Tony, x34415 or 480-2206.
 5 shelf stor. rack, shelves 18x36, \$10; Craftsman buffer-polisher, auto. type, case, \$38; leather tool letters A-Z, \$8. x33182 or 486-2622.
 Ford truck bed liner, L.W.R. w/white metal util. box, \$125. Larry Starnes, x39285 or (409) 925-1122.
 Moving boxes, all sizes, \$1/box. 286-5431.
 Magnelic cycle trainer, ex. cond.; Advent Minoura team Magturbo III, \$90. 488-0003.
 48x30.5x39 wire dog cage, \$40; 36" table, \$20; rocking chair, needs few spokes, refin., \$15; nightstand, \$15; 2 bookcases, dk. stain, \$10/ea. x32607 or 538-1071.
 Wheelchair, \$100; Jobst extremity pump, \$100, both in ex. cond. Earl, x34807 or 532-2242.
 1 Mini-14, Ranch style w/scope/case and 2 magazines, 1 30 rd 1 5 rd, \$400. Dan, x37771 or 996-0931.
 Mans gold watch, Rado Diastar. Swiss made, \$250. 334-2963.
 Diamond Marquis cut, 1/4" band, .60 points, \$1,800; mans gold Austin nugget watch. Michelle, x31165.
 3 frequent flyer SW Airlines ticket, good for anyplace SW flies, \$275/ea. 488-

Space and People

An astronaut reflects on human factor within space flight equation



[Editor's note: The STS-33 crew didn't have much free time for "tourism" during its Nov. 22-26, 1989, Department of Defense mission. But when landing was waived off for three hours, the five crew members had time to use as they wished. Pilot John Blaha tape recorded his reflections. Details of the crew's substantive work are not included because of the mission's classified nature.]

By John Blaha

I finally have the opportunity to reflect on the unbelievable sight below me from my unique orbital vantage point 340 miles above planet Earth. Up here the planet appears as a huge sphere soaring through the black universe. The blue oceans and white clouds are the predominant features. There are no words or pictures which can adequately describe the stunning colors caused by the Sun's reflections off the planet. The planet would be very dark if that "lightbulb" we call the Sun ever went out.

I can see a very thin line (our atmosphere) on the horizon that separates our beautiful blue and white planet from the black universe. Immediately next to the black of space is a very light shade of blue which graduates from light blue to a very dark blue as it approaches the surface of the Earth.

Our *Discovery* space ship currently is moving across India as I look north into China. The panorama before me is beautiful. Two-thirds of the planet is dominated by white clouds. Movement over the terrain is quite rapid as we orbit the Earth 17,500 miles per hour. We currently have our right wing pointed forward; the space ship is upside-down.

I stop what I'm doing to pause and think just how incredible this experience is. Here I am with my four crew mates zooming around planet Earth in our incredible machine. Story Musgrave is suspended next to my right shoulder, trying to photograph the clouds far below. Kathy Thornton "KT"

has a 16mm Arriflex motion picture camera, getting ready to film the Himalayas. Fred Gregory is gazing out of the commander's window and Sonny Carter is rolled upside down looking out the pilot's window. The tan colored Tibetan plateau is north of the Himalayas; the Ganges plain flows to the south. How can anyone adequately describe this unbelievable and exhilarating panoramic view that I have of four wonderful human beings observing our unique beautiful planet? How lucky we are to be here. Wow!

From this planetary perspective I can easily see the plate tectonics on the surface as the Indian subcontinent slams into China forcing the Himalayas to grow one foot every two years. I can see distinct lakes up in China. I'd estimate we're looking 1,200 nautical miles to the north, where sapphire colored lakes are surrounded by tan colored, rolling terrain. Some lakes are long and narrow; other lakes appear to have spider legs.

This three-hour "adventure" is unbelievable. I find the most incredible thing, though, is that there are five human beings in space, orbiting 340 miles above the Earth. The achievements of the entire human race put us here. All those smart people through the centuries have had a hand in building the *Discovery*. Kepler, Galileo, Newton, Einstein, and many others provided the scientific and mathematical foundation. I am reminded of the old saying, "We are only as tall as the shoulders of those we are standing upon." Engineers and scientists in our century invented and constructed the machinery; the fantastic people at the Kennedy Space Center in Florida put it all together. All of these technicians, mathematicians, scientists, and engineers were educated in our universities. Fantastic! What a job they have done.

I will always remember that Thanksgiving eve when I felt our three main engines start. Six seconds later, the solid rocket boosters ignited, and off we went, rocketing into space. On-board, inside our space suits, it was

very quiet. We could feel the vibrations from all the engines as our 4 million pound vehicle accelerated toward space fighting the gravity of Earth. Two minutes after liftoff flames from the separation motors engulfed the forward windows as the solid rocket boosters separated. After separation, the ride became very smooth and quiet as we continued to accelerate. Without a doubt, this is the best elevator ride in the world. We experienced a force of three times that of gravity near the end of powered flight and I felt like a gorilla was sitting on my chest.

Eight and a half minutes after liftoff, the main engines cut off and we were in space—in zero gravity. My arms floated up to chest level and I noticed my ascent procedure reference book floating in front of me at eye level. We were in heaven. This is it, I thought. This is the space program! UNBELIEVABLE! With a busy day ahead of us, we immediately went to work.

But that was four days ago. I just put my walkman on to listen to some music. It seems appropriate since everything is so peaceful up here. We are over Burma now. The mountain ranges are oriented north-south, and the light blue Irrawady river is winding to the south through the valleys to the Indian Ocean. Story is taking pictures of a mountain feature that geologists asked us to film. The commander has a walkman on now too, and is starting to take pictures with a 250mm telephoto lens. He has been a great leader. A former Air Force test pilot, Fred has molded his crew into a very professional, smooth functioning team. He is a quiet, self-assured human being who knows how to distribute responsibilities. And these responsibilities are assumed with enthusiasm and dedication, for this is what the space program is all about... the extension of human talent, determination, wonder, and dreams to a realm beyond our own world.

Outside, reflected sunlight allows us to see our planet (The Himalayas and Burma)... our beautiful blue atmosphere on the horizon... stunning!

inside, KT's brown hair flows aimlessly in zero gravity.

OK, here we go again. I think it is time to hear from the rest of the crew. Story, say something to the folks on Earth. "I'm out of film." He is now diving head first from the flight deck through an opening to the middeck to get another film magazine.

There's Frederick Gregory, he's been a grandfather for 18 months. Fred, give us some words of wisdom on space travel. "I think this is UNBELIEVABLE."

Here's Sonny Carter again. He has been fantastic. A former pro soccer player, now he is in space documenting our flight with beautiful pictures, and at the same time collecting Earth environment data for oceanographers, geologists, and meteorologists. Sonny, what do you have to say to all your sports fans? "John, this is great, this is it."

This is it... this is the space program. Five astronauts in the space shuttle *Discovery* zooming around the Earth between Thanksgiving and Thanksgiving weekend. You just can't have anything better than this, folks.

KT, before you go down to the middeck, what do you think of this space adventure? "This is great, man. This is IT!" You heard it straight from the young Kathy Thornton, doctor, physicist, mother of two beautiful young girls.

The Sun is starting to set as we zoom into the Western Pacific. The terminator is now visible on the Earth. Let me see if I can describe the sunset to you. I am looking at a very black sky out in space. The black space turns into many beautiful shades of blue. I have never seen any pictures that fully capture the beauty I am watching unfold as we move toward the night side of the Earth. The shades of blue get smaller and smaller, like a low-angle triangle, disappearing between the dark of space on one side and the dark of the Earth on the other side. The Sun is creating a glow on the orbiter tail. Absolutely beautiful. Sun glow on the tail, the black of space, the blues on the far horizon, the blues fading into shades of gray at the surface of the Earth.

Okay, now let's see if I can describe what it looks like when our orbit has us on the dark side of the Earth. First of all, I can clearly see toward the center of our galaxy—a wide belt of tightly bunched stars sweeping across the black of space. Also, I can easily identify our navigation stars.

Looking out the front windows, I have a broad view of the horizon and space. The Earth is a very dark gray and there's a light gray ring around the Earth that is the atmosphere... and then the black of space above the atmosphere. I can see blurred stars rising as they come slightly above the Earth rim but are still in the atmosphere. They finally exit the thin atmosphere layer and pop on like little light bulbs. Sirius is there, although not flickering as it does when viewed from the Earth's surface. There is Jupiter. It looks about the same as it does when you see Jupiter from the Earth.

Oh wow, what an unbelievable view! I can see San Antonio (my hometown), Austin, and Dallas. The city lights look very sharp and crisp. And now Houston, Baton Rouge, and New Orleans are visible. This space ship is really moving. The stars provide enough lighting so that I can see the entire Gulf Coast. There are Montgomery and Mobile. The entire Florida peninsula is visible—Miami looks beautiful.

Maybe this description of space and people has never been done before—maybe it has. I don't know. In any event, you've heard it firsthand, brought live to you from the Blaha radio station in space.

I'm gliding swiftly thru the access down into the middeck. As I come down, I see Dr. Sonny Carter. Fred and KT are preparing some chunky chicken stew, potatoes au-gratin, and cauliflower with cheese at the galley. And here comes Dr. Musgrave, floating down into the middeck. He wants to join his friends.

It's too bad you can't be here to see what's going on. This is space flight; this is the real stuff, and I mean it. We—all of us—have a magnificent space program. Millions of wonderful people on the Earth have made it possible for us to be here in space. Indians, Europeans, Australians, the British, Africans—everyone. They have all played a role in helping build America's space program. This year, we deployed a probe to Venus and another probe to Jupiter. Humankind will really learn a lot about our planet from these missions.

Oh, wow! I don't believe it. I thought I had seen it all. Musgrave is now actually shaving his head.

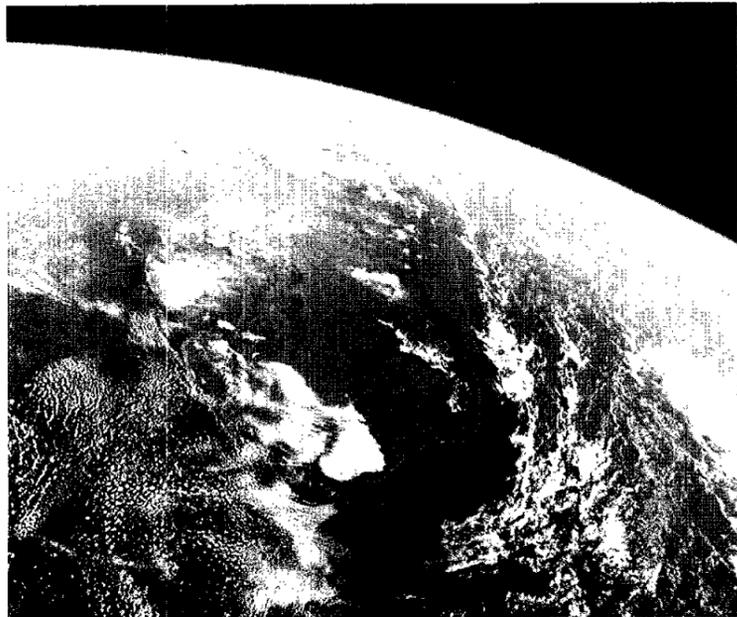
I'm currently suspended out in the middle of the middeck. I'm in a slow roll to the left—a very slow roll. I think I heard Story call. Now I'll push off a locker with my right hand, simultaneously using my left hand against the middeck ceiling to guide me through the access to the flight deck, and let you hear what Story just said... something very important: "Only in America... This is great John, this is space."

People in orbit and at JSC have been working hard all day, getting their jobs done. You would not believe the fine, wonderful Americans, all the way from the West Coast of the U.S. to the East Coast, who built this space ship. Americans at the Marquardt Co., at Rocketdyne, at Rockwell Space Division, and at all of the other factories and companies across our country. It is amazing that it all gets together. We must be doing something right.

Mission Control is calling us now. The commander is talking to Houston. It is time to put my walkman away and get back to work.

Here is Story Musgrave. He wants to say something to all the wonderful people on the Earth. "Are you going to document this event, John?" "Yes," I answer. "Look at all the little ripples in the clouds down there, John. All the little waves and rhythms and thunderstorms and lightning..." I see it Story. What a magnificent view!

Top: The crew of STS-33 poses for an on-board portrait. Clockwise from left are Mission Specialists Sonny Carter and Story Musgrave, Commander Fred Gregory, Mission Specialist Kathy Thornton and Pilot John Blaha. Right: The southern tip of the island of Madagascar comes into view as *Discovery* and the STS-33 crew orbit the Earth.



McDonnell Douglas to open facility

McDonnell Douglas will cut the ribbon on a new office and light manufacturing facility at opening ceremonies from 10 a.m. to 3 p.m. Saturday.

The 83,000-square-foot Clear Lake Development Facility, located adjacent to Ellington Field, will be used to produce space station mock-ups, models and trainers, and develop and integrate space station software.

Opening of the plant completes the first phase of a two-phase construction plan.

The light-manufacturing facilities include a paint booth, clean room

and machinery, sheet metal, welding, wood, plastics, electrical and fabric work areas providing manufacturing support for Crew Health Care Systems development and testing and Weightless Environment Training Facility hardware and staging.

Phase I also provides space for an Avionics Development Facility, an Electrical Power Distribution Test Bed and an Engineering Support Center.

Phase II will provide a 68,000-square-foot building to be used for the space station integrated truss assembly verification activities. The

building will provide an large, open work area that allows assembly of the actual Work Package II flight elements on the ground prior to launch.

McDonnell Douglas leads a five-company team responsible to JSC for designing and developing structures and systems covered in the Space Station Work Package II contract.

All NASA employees and their families are invited to attend Saturday's open house. To comply with federal regulations, government employees will be required to pay for refreshments.



McDonnell Douglas' new facility near Ellington Field will be used to build space station mock-ups, models and trainers, and design space station software.

NACA alumni to gather in Galveston for reunion

JSC will host the fifth reunion of the National Advisory Committee for Aeronautics alumni Oct. 17-19, 1991, at a beachfront hotel in Galveston.

NACA, NASA's predecessor, was the nation's civilian aeronautics research organization from 1915-1958.

The first JSC workers came from the Space Task Group, formed at Langley Research Center to develop the Mercury Program. Among them were Dr. Robert R. Gilruth, JSC's first director; Dr. Christopher C. Kraft Jr., JSC's second director; and Dr. Maxime Faget, the first JSC director of engineering and development. The core group of 35 people was

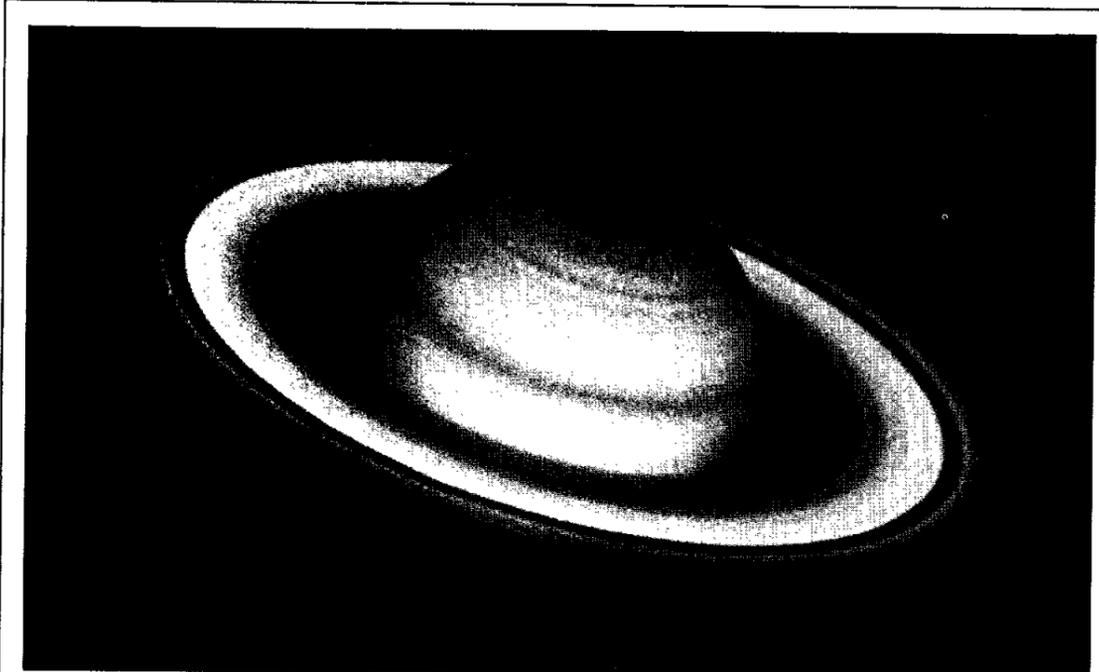
later joined by hundreds of other NACA personnel from all of its centers.

The STG moved to Houston and officially became the Manned Spacecraft Center on Nov. 1, 1961.

It later was renamed the Johnson Space Center.

JSC will be the first non-NACA center to host the reunion.

Guy Thibodeau, an original STG member, is chairman of the reunion committee. The former chief of JSC's Power and Propulsion Division is mailing the first notice of the reunion this month, and NACA alumni are encouraged to send their current mailing addresses to him at P.O. Box 580269, Houston, TX, 77258.



NASA Photo

GREAT WHITE HUNTER—The Hubble Space Telescope will be trained on Saturn's newly discovered "Great White Spot" in November. The Wide Field/Planetary Camera will record several images for two orbits on three days. The spot, a storm with a diameter of more than 50,000 miles covering much of one hemisphere, is now larger than the famous "Great Red Spot" on Jupiter. This Hubble image of Saturn was taken before the storm was discovered Sept. 24 by amateur astronomer Stuart Wilber from Las Cruces, N.M.

Community group seeks science fair mentors

By Kari Fluegel

Friendswood Community Education is seeking volunteer mentors to work with junior high school students preparing for a science fair during the current school year.

"By helping a local child develop an interest in science, you can participate in assuring that future generations of Americans are prepared to explore the canyons and mountains of Mars," said Lynn Gordon-Winkler, coordinator for the JSC volunteer effort.

Sponsors eventually hope to expand the fair, a pilot project with Friendswood Junior High School, to students from kindergarten through 12th grade.

Mentors are needed to lead hands-on demonstrations of the scientific method, to assist participants with the projects from the planning stage through completion and to serve as judges and assist in planning for the

project. The time requirement for volunteers is about 12 hours before the Galveston County Science Fair in late February. Most of the contact between the mentors and the students can be individually scheduled or made by telephone.

An informational meeting regarding the project is set for Monday from 3:30 to 5 p.m. in the Bldg. 30 auditorium or contact Gordon-Winkler at 283-5400.

Educational videotape series features JSC employees

An inspirational new series of educational videotapes starring award-winning teacher Jaime Escalante and featuring 10 JSC employees will be broadcast daily at JSC starting Monday.

"FUTURES," a fast-paced series aimed at students in grades 7 through 12, will be aired Oct. 29-Nov. 13 on Channel 6 of the JSC Television Distribution System. A differ-

ent 15-minute episode will be aired each day at noon and repeated at 1 p.m.

The videos also will be available for loan to NASA and contractor employees in the Public Affairs Office's current events library. Employees who wish to borrow the tapes for a maximum of two weeks should call Vicki Hawthorne at x38643.

The series, produced by the Los Angeles-based Foundation for Advancements in Science and Education, was created to motivate students to study math and science by relating those fields to a myriad of career paths. Escalante, whose teaching experiences were profiled in the movie "Stand and Deliver," is the host.

JSC employees who appear

Persian Gulf family support meeting

Family members and loved ones of military personnel deployed in the Persian Gulf area will gather Sunday at a special support meeting sponsored by the Clear Lake Service Center of the American Red Cross. The meeting will be held at the

United Way Building, 18301A Egret Bay Blvd., from 3 to 5 p.m.

Those attending will have the opportunity to meet, interact and share with others in similar situations. For more information, call 333-9700, ext. 39.

Smokers quitting one hour at a time

(Continued from Page 1)

until I came to class, and now I'm having to listen to all of you backsliders and it's like asking me if I want a cigarette! For the first time today, I'm really thinking about it!"

Everybody started looking around out of the corner of their eyes for a place to drop and roll in case this guy was packin' heat. But no prob-

lem, not to worry, he had it under control. And he was right. Beyond the first day or two, the goal is to get on with one's life and not dwell on a habit which has dropped by the wayside. Deep breath. Exhale. Cleansing breath. Exhale.

It's the only way any of us can think of to become non-smokers. One hour at a time.

Rockwell wins excellence award for improved quality

(Continued from Page 1)

Other nominees were EG&G Florida Inc., Florida; Grumman Technical Services Division, Titusville, Fla.; and Boeing Computer Support Services, Huntsville, Ala.

The award, renamed this year to honor the late Apollo program director and space flight pioneer, recognizes NASA prime contractors, subcontractors and suppliers for outstanding achievement in quality and productivity improvement and Total Quality Management.

NASA Administrator Richard H. Truly announced the award name change in his Wednesday keynote address opening the conference.

"George Low represented quality and excellence like few others. . . . If

NASA is synonymous with excellence, George Low is synonymous with NASA," Truly said.

He added that during Low's nearly three decades of service to NASA, he was "involved in every success the American space program had."

Award criteria, developed by NASA in conjunction with the American Society for Quality Control, were used to judge nominees on performance achievements and improvements in customer satisfaction, quality and productivity levels.

Emphasis was placed on management commitment, goals and measures, communication, health and safety, work force training, award recognition and subcontractor involvement.

Space News Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every Friday by the Public Affairs Office for all space center employees.

Editor Kelly Humphries

Associate Editors Pam Alloway
Kari Fluegel

Expo to show off JSC projects

(Continued from Page 1)

through the use of its aerodynamic drag, and finally enter low Earth orbit for a space shuttle to retrieve it. The spacecraft would be used to transport science payloads or cargo, servicing equipment, or personnel between low- and high-Earth orbit or the Moon.

Once inside the Gilruth, event-goers will find their gaze drawn upwards where a portion of the Gilruth's ballroom ceiling will be covered with a white, 40-foot-diameter parachute, if the hardware arrives before the expo. The hardware is part of the orbiter landing/deceleration system project being worked on by engineers in the Structures and Mechanics Division. The drag chute assembly, housed in an aluminum structure, will be mounted in the lower portion of each orbiter's vertical tail. The hardware is expected to arrive at JSC from Irvin Industries, a California company, said John Kennedy, subsystem manager.

A 1/20th scale model of an orbiter's

payload bay also will be featured at the expo. Dave Tadlock, deputy manager of Engineering's System Engineering and Integration Office, said the model will be used primarily to test payload packing organization in the cargo bay, and as a tool to identify and solve any problems in carrying designated payloads into space.

"This will allow engineers to visualize problems they might not see just looking at drawings," Tadlock said.

Besides NASA and contractor employees and their families, participants in Space Exploration '90, a conference and aerospace industry exposition sponsored by the NASA Alumni League and held at the South Shore Harbour Conference Center, will attend the expo.

A continuous shuttle bus will operate about every 15 minutes during the expo from 8 a.m. to 4:30 p.m., stopping at Bldgs. 1, 9B, 45, Gilruth and South Shore.